<u>Listing of Claims:</u>

1.   (Previously Presented) An image pickup system for processing an image signal at each pixel which comprises a plurality of color signals, and one or more of the color signals are dropped out according to a location of the pixel, the image
5   pickup system comprising:

first interpolation means for interpolating the color signals dropped-out from the image signals by a first interpolation method;

precision verification means for verifying the interpolation
10   precision based on the image signals and the color signals interpolated by the first interpolation means; and

second interpolation means for interpolating the color signals dropped-out from the image signals by a second interpolation method that is different from the first
15   interpolation method in cases where it is judged that the interpolation precision by the first interpolation method is insufficient.

2.   (Currently Amended) An image pickup system for processing an image signal at each pixel which comprises a plurality of color signals, and one or more of the color signals

are dropped out according to a location of the pixel, the image

5   pickup system comprising:

separation means for separating the image signals into first

image signals and second image signals based on predetermined

characteristics relating to the image signals;

first interpolation means for interpolating the dropped-out

10   color signals from the first image signals by a first

interpolation method;

second interpolation means for interpolating the dropped-out

color signals from the second image signals by a second

interpolation method that is different from the first

15   interpolation ~~means~~ <u>method</u>;

precision verification means for verifying the interpolation

precision based on the first image signals and the color signals

interpolated by the first interpolation means for ~~the~~ regions of

the first image signals, and verifying the interpolation

20   precision based on the second image signals and the color signals

interpolated by the second interpolation means for ~~the~~ regions of

the second image signals; and

adjustment means for causing interpolation processing of the

dropped-out color signals to be performed again ~~from the image~~

25   ~~signals~~ by the second interpolation means when insufficient

interpolation was performed by the first interpolation means, and

for causing interpolation processing of the dropped-out color

signals to be performed again ~~from the image signals~~ by the first

interpolation means when insufficient interpolation was performed

30   by the second interpolation means, in cases where it is judged

that the interpolation precision is insufficient.

3.   (Previously Presented) An image pickup system for

processing an image signal at each pixel which comprises a

plurality of color signals, and one or more of the color signals

are dropped out according to a location of the pixel, the image

5   pickup system comprising:

first interpolation means for interpolating the color

signals dropped-out from the image signals by a first

interpolation method;

second interpolation means for interpolating the color

10   signals dropped-out from the image signals by a second

interpolation method that is different from the first

interpolation method;

precision verification means for verifying the interpolation

precision based on the image signals, the color signals

15   interpolated by the first interpolation means and the color

signals interpolated by the second interpolation means; and

selection means for selecting color signals having a higher

interpolation precision between the color signals interpolated by

the first interpolation means and the color signals interpolated

20   by the second interpolation means.

     4.   (Previously Presented) The image pickup system according

to claim 1, wherein the first interpolation means or second

interpolation means comprises:

     extraction means for extracting regions of a predetermined

 5   size centered on pixels of interest from the image signals,

     edge extraction means for extracting a plurality of edge

intensities relating to predetermined directions from the pixels

of interest within the extracted regions,

     weighting calculation means for calculating weighting

10   coefficients that are normalized from the extracted edge

intensities,

     interpolation signal calculation means for calculating a

plurality of interpolation signals relating to predetermined

directions from the pixels of interest within the extracted

15   regions, and

     calculation means for calculating the dropped-out color

signals in the pixels of interest based on a plurality of

weighting coefficients relating to the predetermined directions

and a plurality of interpolation signals relating to the

20   predetermined directions.

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5.   (Previously Presented) The image pickup system according to claim 1, wherein the first interpolation means or second interpolation means comprises:

extraction means for extracting regions of a predetermined

5   size centered on pixels of interest from the image signals, and

calculation means for calculating the dropped-out color signals in the pixels of interest within the extracted regions by linear interpolation or cubic interpolation.

6.   (Previously Presented) The image pickup system according to claim 1, wherein the first interpolation means or second interpolation means comprises:

extraction means for extracting regions of a predetermined

5   size centered on pixels of interest from the image signals,

correlation calculation means for determining the correlation between the respective color signals within the extracted regions as a linear equation, and

calculation means for calculating the dropped-out color

10   signals based on the image signals and the correlation.

7.   (Previously Presented) The image pickup system according to claim 1, wherein the precision verification means comprises:

correlation calculation means for determining correlation information relating to the correlations between the respective

5   color signals for each predetermined region based on the image

signals and the color signals interpolated by the first

interpolation means, and

        correlation verification means for verifying the

interpolation precision based on the correlation information.

        8.   (Previously Presented) The image pickup system according

to claim 1, wherein the precision verification means comprises:

        hue calculation means for determining hue information for

each pixel based on the image signals and the color signals

5   interpolated by the first interpolation means, and

        hue verification means for verifying the interpolation

precision based on the hue information.

        9.   (Previously Presented) The image pickup system according

to claim 1, wherein the precision verification means comprises:

        edge calculation means for determining edge information for

each predetermined region based on the image signals and the

5   color signals interpolated by the first interpolation means, and

        edge verification means for verifying the interpolation

precision based on the edge information.

        10.   (Previously Presented) The image pickup system

according to claim 2, wherein the separation means comprises:

edge calculation means for determining edge information for each predetermined region from the image signals, and

5   image signal separation means for separating the image signals based on the edge information.

11.   (Previously Presented) The image pickup system according to claim 2, wherein the separation means comprises:

correlation calculation means for determining correlation information relating to the correlations between the respective

5   color signals for each predetermined region from the image signals, and

image signal separation means for separating the image signals based on the correlation information.

12.   (Previously Presented) The image pickup system according to claim 1, further comprising control means for controlling the precision verification means and the second interpolation means such that the operation of the precision verification means and the operation of the second interpolation means can be stopped.

13.   (Previously Presented) The image pickup system according to claim 2, further comprising control means for controlling the precision verification means and the second

interpolation means such that the operation of the precision

verification means and the operation of the adjustment means can

be stopped.

14.   (Previously Presented) The image pickup system

according to claim 3, further comprising control means for

controlling the precision verification means and the second

interpolation means such that the operation of the second

5   interpolation means and the operation of the precision

verification means can be stopped, and for controlling the

selection means such that when the operation of the second

interpolation means and the operation of the precision

verification means are stopped, the selection means is caused to

10   select only the color signals that are interpolated by the first

interpolation means.

15.   (Previously Presented) The image pickup system

according to claim 12, wherein the control means comprises:

information acquisition means for acquiring at least one

type of information selected from a set comprising image quality

5   information relating to the image quality of the image signals,

image pickup mode information set in the image pickup system, and

interpolation processing switching information that can be

manually set, and

judgment means for judging whether or not the operations are

10   to be stopped based on at least one type of information selected

from a set comprising the image quality information, image pickup

mode information, and interpolation processing switching

information.

16.   (Currently Amended) A computer-readable recording

medium having stored thereon an image processing program method,

for an image pickup system, for processing , by means of a

computer, an image signal at each pixel which comprises a

5   plurality of color signals, wherein the image pickup system

comprises an image pickup element which outputs an image signal

for each pixel from which and one or more of the color signals

are dropped out according to the location of the pixel, the image

processing program causing the computer to function as method

10   comprising:

first interpolation means for interpolating, by a first

interpolating unit of the image pickup system, the color signals

dropped-out from the image signals by a first interpolation

method;

15   precision verification means for verifying, by a

verification unit of the image pickup system, the interpolation

precision based on the image signals and the color signals

interpolated by the first ~~interpolation means~~ <u>interpolating unit</u>;
and

20   ~~second interpolation means for~~ interpolating<u>, by a second</u>
<u>interpolating unit of the image pickup system,</u> the color signals
dropped-out from the image signals by a second interpolation
method that is different from the first interpolation method in
cases where it is judged that the interpolation precision is
25   insufficient.

        17.   (Currently Amended) A ~~computer-readable recording~~
~~medium having stored thereon an image processing program~~ <u>method,</u>
<u>for an image pickup system,</u> for processing ~~, by means of a~~
~~computer,~~ an image signal at each pixel which comprises a
5   plurality of color signals, <u>wherein the image pickup system</u>
<u>comprises an image pickup element which outputs an image signal</u>
<u>for each pixel from which</u> ~~and~~ one or more of the color signals
are dropped out according to the location of the pixel, the ~~image~~
~~processing program causing the computer to function as~~ <u>method</u>
10   <u>comprising</u>:
        ~~separation means for~~ separating<u>, by a separating unit of the</u>
<u>image pickup system,</u> the image signals into first image signals
and second image signals based on predetermined characteristics
relating to the image signals;

15   ~~first interpolation means for~~ interpolating, by a first

interpolating unit of the image pickup system, the color signals

dropped-out from the first image signals by a first interpolation

method;

        ~~second interpolation means for~~ interpolating, by a second

20   interpolating unit of the image pickup system, the color signals

dropped-out from the second image signals by a second

interpolation method that is different from the first

interpolation ~~means~~ method;

        ~~precision verification means for~~ verifying, by a

25   verification unit of the image pickup system, the interpolation

precision based on the first image signals and the color signals

interpolated by the first ~~interpolation means~~ interpolating unit

for ~~the~~ regions of the first image signals, and ~~for~~ verifying, by

the verification unit, the interpolation precision based on the

30   second image signals and the color signals interpolated by the

second ~~interpolation means~~ interpolating unit for ~~the~~ regions of

the second image signals; and

        ~~adjustment means for~~ causing, by an adjustment unit of the

image pickup system, interpolation processing of the dropped-out

35   color signals to be performed again ~~from the image signals~~ by the

second ~~interpolation means~~ interpolating unit when insufficient

interpolation was performed by the first ~~interpolation means~~

interpolating unit, and ~~for~~ causing, by the adjustment unit,

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interpolation processing of the dropped-out color signals to be

40   performed again ~~from the image signals~~ by the first ~~interpolation~~

~~means~~ interpolating unit when insufficient interpolation was

performed by the second ~~interpolation means~~ interpolating unit,

in cases where it is judged that the interpolation precision is

insufficient.

18.   (Currently Amended) A ~~computer-readable recording~~

~~medium having stored thereon an image processing program~~ method,

for an image pickup system, for processing ~~, by means of a~~

~~computer,~~ an image signal at each pixel which comprises a

5   plurality of color signals, wherein the image pickup system

comprises an image pickup element which outputs an image signal

for each pixel from which ~~and~~ one or more of the color signals

are dropped out according to the location of the pixel, the ~~image~~

~~processing program causing the computer to function as~~ method

10   comprising:

~~first interpolation means for~~ interpolating, by a first

interpolating unit of the image pickup system, the color signals

dropped-out from the image signals by a first interpolation

method;

15   ~~second interpolating means for~~ interpolating, by a second

interpolating unit of the image pickup system, the color signals

dropped-out from the image signals by a second interpolation

method that is different from the first interpolation method;

~~precision verification means for~~ verifying, by a

20   verification unit of the image pickup system, the interpolation

precision based on the color signals, the color signals being

interpolated by the first ~~interpolation means~~ interpolating unit

and by the second ~~interpolation means~~ interpolating unit; and

~~selection means for~~ selecting, by a selection unit of the

25   image pickup system, color signals that have a higher

interpolation precision between the color signals that are

interpolated by the first ~~interpolation means~~ interpolating unit

and the color signals that are interpolated by the second

~~interpolation means~~ interpolating unit.

19.   (Previously Presented) The image pickup system

according to claim 2, wherein the first interpolation means or

second interpolation means comprises:

extraction means for extracting regions of a predetermined

5   size centered on pixels of interest from the image signals;

edge extraction means for extracting a plurality of edge

intensities relating to predetermined directions from the pixels

of interest within the extracted regions;

weighting calculation means for calculating weighting

10   coefficients that are normalized from the extracted edge

intensities;

interpolation signal calculation means for calculating a

plurality of interpolation signals relating to predetermined

directions from the pixels of interest within the extracted

15   regions; and

calculation means for calculating the dropped-out color

signals in the pixels of interest based on a plurality of

weighting coefficients relating to the predetermined directions

and a plurality of interpolation signals relating to the

20   predetermined directions.

20.   (Previously Presented) The image pickup system

according to claim 2, wherein the first interpolation means or

second interpolation means comprises:

extraction means for extracting regions of a predetermined

5   size centered on pixels of interest from the image signals; and

calculation means for calculating the dropped-out color

signals in the pixels of interest within the extracted regions by

linear interpolation or cubic interpolation.

21.   (Previously Presented) The image pickup system
according to claim 2, wherein the first interpolation means or
second interpolation means comprises:

extraction means for extracting regions of a predetermined
5   size centered on pixels of interest from the image signals;

correlation calculation means for determining the
correlation between the respective color signals within the
extracting regions as a linear equation; and

calculation means for calculating the dropped-out color
10   signals based on the image signals and the correlation.

22.   (Previously Presented) The image pickup system
according to claim 2, wherein the precision verification means
comprises:

correlation calculation means for determining correlation
5   information relating to the correlations between the respective
color signals for each predetermined region based on the image
signals and the color signals interpolated by the first
interpolation means, and

correlation verification means for verifying the
10   interpolation precision based on the correlation information.

23.   (Previously Presented) The image pickup system according to claim 2, wherein the precision verification means comprises:

hue calculation means for determining hue information for each pixel based on the image signals and the color signals interpolated by the first interpolation means, and

hue verification means for verifying the interpolation precision based on the hue information.

24.   (Previously Presented) The image pickup system according to claim 2, wherein the precision verification means comprises:

edge calculation means for determining edge information for each predetermined region based on the image signals and the color signals interpolated by the first interpolation means, and

edge verification means for verifying the interpolation precision based on the edge information.

25.   (Previously Presented) The image pickup system according to claim 3, wherein the first interpolation means or second interpolation means comprises:

extraction means for extracting regions of a predetermined size centered on pixels of interest from the image signals;

edge extraction means for extracting a plurality of edge

intensities relating to predetermined directions from the pixels

of interest within the extracted regions;

weighting calculation means for calculating weighting

10   coefficients that are normalized from the extracted edge

intensities;

interpolation signal calculation means for calculating a

plurality of interpolation signals relating to predetermined

directions from the pixels of interest within the extracted

15   regions; and

calculation means for calculating the dropped-out color

signals in the pixels of interest based on a plurality of

weighting coefficients relating to the predetermined directions

and a plurality of interpolation signals relating to the

20   predetermined directions.

26.   (Previously Presented) The image pickup system

according to claim 3, wherein the first interpolation means or

second interpolation means comprises:

extraction means for extracting regions of a predetermined

5   size centered on pixels of interest from the image signals; and

calculation means for calculating the dropped-out color

signals in the pixels of interest within the extracted regions by

linear interpolation or cubic interpolation.

27.   (Previously Presented) The image pickup system according to claim 3, wherein the first interpolation means or second interpolation means comprises:

extraction means for extracting regions of a predetermined

5   size centered on pixels of interest from the image signals;

correlation calculation means for determining the correlation between the respective color signals within the extracting regions as a linear equation; and

calculation means for calculating the dropped-out color signals based on the image signals and the correlation.

28.   (Previously Presented) The image pickup system according to claim 3, wherein the precision verification means comprises:

correlation calculation means for determining correlation

5   information relating to the correlations between the respective color signals for each predetermined region based on the image signals and the color signals interpolated by the first interpolation means, and

correlation verification means for verifying the

10   interpolation precision based on the correlation information.

29. (Previously Presented) The image pickup system according to claim 3, wherein the precision verification means comprises:

hue calculation means for determining hue information for each pixel based on the image signals and the color signals interpolated by the first interpolation means, and

hue verification means for verifying the interpolation precision based on the hue information.

30. (Previously Presented) The image pickup system according to claim 3, wherein the precision verification means comprises:

edge calculation means for determining edge information for each predetermined region based on the image signals and the color signals interpolated by the first interpolation means, and

edge verification means for verifying the interpolation precision based on the edge information.

31. (Previously Presented) The image pickup system according to claim 13, wherein the control means comprises:

information acquisition means for acquiring at least one type of information selected from a set comprising image quality information relating to the image quality of the image signals, image pickup mode information set in the image pickup system, and

interpolation processing switching information that can be

manually set, and

10   judgment means for judging whether or not the operations are

to be stopped based on at least one type of information selected

from a set comprising the image quality information, image pickup

mode information, and interpolation processing switching

information.

32.   (Previously Presented) The image pickup system

according to claim 14, wherein the control means comprises:

information acquisition means for acquiring at least one

type of information selected from a set comprising image quality

 5   information relating to the image quality of the image signals,

image pickup mode information set in the image pickup system, and

interpolation processing switching information that can be

manually set, and

judgment means for judging whether or not the operations are

10   to be stopped based on at least one type of information selected

from a set comprising the image quality information, image pickup

mode information, and interpolation processing switching

information.